REMARKS

The Office Action dated April 25, 2003 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 2-19 are pending in the application. By this Amendment, Applicants have cancelled claim 1 without prejudice. Applicants have also amended claim 2-19 to more particularly point out and distinctly claim the present invention. No new matter has been added. In view of the following remarks, reconsideration and allowance of these claims are respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 112

On page 3, paragraph 7 of the Office Action, claims 1-19 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office Action alleges that it is unclear in light of the specification what is meant by "overall service situation." The Office has taken the position that the phrase "overall" refers to determining the parameters for more than one QoS class as disclosed on page 6, lines 14-24 of the specification.

Claim 1 is cancelled without prejudice. Thus, the rejection, regarding this claim, is moot.

Applicants respectfully submit that the Office is incorrect in assuming that the phrase "overall service situation" means determining the parameters for more than one

QoS class. Applicant respectfully submit that one of the technical problems that the present invention addresses, as discussed on page 2-3 of the specification, is that according to the invention a user can observe the quality of a specific connection, which may be the connection that he is currently using. For example, the user can observe that he is receiving data at 10 kilobits per second. This may be a speed which the user considers to be slow. However, the user has no way of knowing whether the slow speed is due to delays generally in the network or if a problem exists at the other end of connection, for example, at the server. If the user can observe a speed of 10 kilobits per second and the network informs the user that the overall service situation is such that the data is being transferred at 50 kilobits per second for the average of several users connected to the network, the user can realize that the slow speed that he is experiencing is due to his connection, and not a problem associated with the network. Therefore, renegotiating to a higher QoS class is not likely to improve the user's current situation. Namely, the phrase "overall service situation" indicates the average of at least one parameter of several users within the network, as discussed, for example, on pages 2-3 of the specification.

In view of the above comments, Applicants respectfully request the withdrawal of this rejection.

CLAIM REJECTIONS UNDER 35 USC § 103

Claims 1-3, 7-8, 9-11, 13-15 and 19 were rejected under 35 U.S.C. 103 as being unpatentable over "Mobile Multimedia: In Context to ATM Transports and GSM/GPRS

Mobile Access Networks" by S.S. Chakraborty in further view of "ATM Traffic Management Specification Version 4.0" to ATM Forum and Turina (U.S. Patent No. 6,031,832). The Office Action alleged that Chakraborty discloses all of the elements of the claimed invention, with the exception of supplying the overall parameters(s) to the use of terminal equipment (e.g., a mobile terminal). The Office Action relies upon the ATM Traffic Management Specification and Turina to allegedly cure the deficiencies of Chakraborty. Applicants submit that the prior art cited in the Office Action fails to teach, suggest or disclose the features of the claimed invention. Therefore, reconsideration is respectfully requested for the reasons which follow.

Claim 1 is cancelled without prejudice. Thus, the rejection, regarding this claim, is moot.

Claim 12, upon which claims 2-19 are dependent, recites a method for indicating a prevailing overall service situation in a packet radio network which includes at least one base station and at least one terminal equipment and where several classes for the quality of service have been determined. The method includes a step of determining at least one parameter representing the overall service situation of the packet radio network. The method also includes a step of supplying the at least one parameter to the use of the terminal equipment, wherein the at least one parameter is determined relating to at least two base station systems and the at least one parameter is employed as a crossover criterion.

A method and system for determining a service situation in a packet radio network is provided as a result of the claimed invention. The claimed invention is directed to transmitting the overall service situation to a user and/or the applications programs so that the application can automatically adapt to changes in the service situation. Based upon the overall service situation, the claimed invention is able to determine whether the quality of service (QoS) that a terminal equipment is currently receiving can be improved by entering into negotiations with a base station to either lower or increase its current level of QoS. These advantages are not all-inclusive but are merely exemplars of some of the benefits of the invention.

Applicants submit that the prior art fails to disclose or suggest the elements of the invention as set forth in claims 2-19, and thereby fails to provide the critical and nonobvious advantages that are provided by the invention. To establish a prima facie case of obviousness, the prior art reference (or references when combined) must teach or suggest all of the claimed limitations. There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The teaching or suggestion to make the claimed combination must be found in the prior art, and not be based on Applicants' disclosure. See M.PE.P. §§ 2143.01 and 2143.03.

Chakraborty discloses a scenario where an ATM backbone network is provided with a mobile access network such as a GSM/GPRS. Chakraborty discusses in general terms concepts of implementing an ATM backbone network with a mobile access

network. Chakraborty identifies one problem with its proposal is the integration of the ATM and the mobile networks because the ATM is a prime backbone network for a multitude of services. (Chakraborty, pages 1938-1939). Chakraborty states that disparities exists between the two types of networks because, "A mobile network is inherently a lower QoS network, compared to a wireline network. " To address this problem, Chakraborty teaches that, during a session between a mobile and fixed terminal, the "negotiated QoS" will be governed by the lower values in most cases. Namely, the whole session will be toned down to the lower QoS parameters. In other cases such as multicasting, Chakraborty teaches that the system should get rid of adhering to a multitude of QoS specifications. (Chakraborty, pg. 1939, "D. Service Scalability and Buffering").

The ATM Traffic Management Specification Version 4.0 discloses the definition of the negotiated QoS parameters that may apply to a connection. According to this reference, the parameters are defined in the terms of: (a) a method for measuring the transfer characteristics of the network as observed on a single ATM cell or a sequence of ATM cells during the lifetime of an ATM virtual connection and (b) a statistical objective that is negotiated, such that the network agrees to meet at least the value negotiated over a large sample of cells.

Turina discloses that, on the downlink of a communication channel, the size of the current traffic load and the process of prioritizing the downlink packet transfers are considerations which also result in variable delays when the channel resources allocated

for the packet data service transmissions are insufficient. As such, both the uplink and downlink packet traffic are thus subject to a variable quality of service (QoS), which can be expressed in terms of both variable time delays and decreased throughput. Turina further discloses that the GPRS standard specifies four different QoS levels, which are consequently mapped across the different communication layers of the air interface. On the lower two layers (medium access control layer and physical layer), these four QoS levels are mapped onto four priority levels. These four priority levels are used to prioritize access to the system.

However, it is Applicants' position that Chakraborty, the ATM Traffic Management Specification Version 4.0 and Turina, taken alone or in combination, do not render the claimed invention obvious for several reasons. First, Chakraborty actually teaches away from the present invention. The claimed invention is directed to transmitting the overall service situation to a terminal equipment and/or its applications programs so that the application can automatically adapt to changes in the service situation. The invention transmits information on the overall service situation of the classes for the QoS that is available to the terminal equipment. Based upon the overall service situation, the claimed invention enables the terminal equipment to determine whether negotiation of the QoS would actually improve the terminal equipment's current transmission. Based upon the overall service situation, the terminal equipment can determine whether to lower or increase its current QoS level. The overall service situation also allows the terminal equipment to determine, based upon the current demand

on the base station, whether adjusting the current QoS will improve the current transmission at all. If not, then the invention allows the terminal equipment to connect to a neighbor base station to determine whether a neighboring base station would provide a better QoS.

Rather, Chakraborty teaches that the negotiated QoS parameters should be handled in one of two modes. Neither of the modes in Chakraborty allows the terminal equipment to actually negotiate its level of QoS. In Chakraborty, the QoS will automatically be governed by the lower QoS or down graded to either a lossy or lossless types of services. (Chakraborty, pg. 1939, "D. Service Scalability and Buffering"). Although Chakraborty mentions the phrase "negotiated QoS", no negotiation is actually permitted in Chakraborty because the terminal equipment (i.e., mobile user) is set by the network to operate at either one of the two modes. If the terminal equipment of Chakraborty does not operate in one of these two modes, there is no opportunity for the terminal equipment to negotiate with a base station.

Another reason that Chakraborty does not render the claimed invention obvious is because Chakraborty fails to teach or disclose the concept of an overall service situation, wherein the overall service situation determines an average QoS class. In the claimed invention, an average of at least one parameter of several network users is determined to represent the service situation of the packet radio network. The at least one parameter is supplied to the terminal equipment so that the terminal equipment can determine the negotiation strategy to employ within the network. Chakraborty merely mentions the

QoS parameters and lists examples of services provided by the ATM but does not teach or suggest making a determination of an overall service situation for at least one class of service.

Furthermore, as admitted by the Office Action, another limitation missing from Chakraborty is the step of supplying the parameter representing the overall service situation to the use of the terminal equipment. Chakraborty also fails to suggest or disclose that the at least one parameter is determined related to at least two base station systems and the at least one parameter is employed as a crossover criterion.

Second, the Office Action relies upon the ATM Traffic Management Specification to allegedly cure the deficiencies of Chakraborty. The ATM Traffic Management Specification discloses that the definition of negotiated QoS parameters are defined so that a statistical object is negotiated such that the network agrees to meet at least the value negotiated over a large sample of cells. However, the ATM Traffic Management Specification suffers from the same shortcomings as Chakraborty. Namely, the ATM Traffic Management Specification also fails to disclose or suggest the steps of indicating a prevailing "overall service situation" in a packet radio network which includes at least one base station and at least one terminal equipment and where several classes for the quality of service have been determined; determining at least one parameter representing the "overall service situation" of the packet radio network; and supplying the at least one parameter to the use of the terminal equipment, wherein the at least one parameter is

determined relating to at least two base station systems and the at least one parameter is employed as a "crossover criterion."

Third, the Office Action further relies upon Turina to cure the deficiencies of the combination of Chakraborty and the ATM Traffic Management Specification. Although Turina discloses that both the uplink and downlink packet traffic are subject to a variable QoS, which can be expressed in terms of both variable time delays and decreased throughput, Turina, like Chakraborty and the ATM Traffic Management Specification, fails to disclose the steps of indicating a prevailing "overall service situation" in a packet radio network which includes at least one base station and at least one terminal equipment and where several classes for the quality of service have been determined; determining at least one parameter representing the "overall service situation" of the packet radio network; and supplying the at least one parameter to the use of the terminal equipment, wherein the at least one parameter is determined relating to at least two base station systems and the at least one parameter is employed as a "crossover criterion."

For at least these reasons, Applicants respectfully submit that claims 2-19 are patentable over Chakraborty, the ATM Traffic Management Specification and Turina, taken in combination or alone.

Furthermore, claims 2-19 depend from claim 1 and are therefore allowable at least for the reasons claim 12 is allowable, respectively, and for the specific limitations recited therein.

Claims 4-6, 12, and 16-18 rejected under 35 U.S.C. 103 as being unpatentable over "Mobile Multimedia: In Context to ATM Transports and GSM/GPRS Mobile Access Networks" by S.S. Chakraborty in view of "Real-Time Scheduling with Quality of Service Constraints" by Hyman et al. The Office Action alleged that Chakraborty discloses various QoS. The Office Action then takes Official Notice that such determining factors as basis of utilization ratio, basis of time stamps, success probability of resources reservation attempts, waiting times of resources reservations are well known. The Office Action further alleged that it would have been obvious to a skilled artisan to apply the determining factors for QoS in a wireless in general. The Office Action also comments that Hyman discloses more examples of such constraints. Applicants submit that the prior art cited in the Office Action fails to teach, suggest or disclose the features of the claimed invention. Therefore, reconsideration is respectfully requested for the reasons which follow.

Hyman discloses real-time scheduling with quality of service constraints. Hyman discloses implementing class-based asynchronous time sharing (ATS) networks. Hyman discusses the concept of a schedulable region, which is the region in the space of possible loads for which scheduling algorithm guarantees QoS.

Applicants submit that neither Chakraborty nor Hyman, taken in combination or alone, discloses or suggest the claimed invention. First, Chakraborty teaches away from the present invention and also fails to disclose several limitations of the claimed invention as discussed above. Hyman does not cure the deficiencies of Chakraborty.

Hyman is directed solely to scheduling data transmission in an asynchronous time sharing (ATS) network within an asynchronous transfer mode (ATM). An ATS network is based upon a protocol that implements a service according to the guaranteed quality of service offered, and an ATM is a network based only a packet or fixed cell switching technology. In comparison to the claimed invention, Hyman does not teach or suggest transmitting data in both a packet switching and a mobile network. In other words, Hyman does not teach or suggest a packet radio network that includes at least one base station as recited in the claimed invention.

Furthermore, Hyman discusses class-based scheduling, but Hyman, like Chakraborty, does not teach or suggest an overall service situation, wherein the overall service situation determines an average QoS class and at least one parameter is determined to represent the overall service situation of the packet radio network. In the claimed invention, the at least one parameter is transmitted to a terminal equipment in order to permit the terminal equipment to negotiate its level of QoS. Hyman, on the other hand, discloses buffering and scheduling the transmission of the data packets based upon each classification. (Hyman, page 1053, "A. The Architecture of the Switching Node" and "B. The Quality of Service Constraints"). As discussed above, an ATS network is based upon a protocol that implements a service according to the guaranteed QoS offered. The design of ATS-based networks relies on the hardware implementation of buffer management and scheduling algorithms in which the QoS guarantee is explicitly

incorporated. In other words, Hyman only discloses buffering and scheduling the transmission of data packets based upon the QoS in a packet switching network.

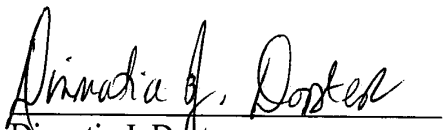
In other words, the Chakraborty and Hyman, taken in combination or alone fails to disclose or suggest the steps of indicating a prevailing "overall service situation" in a packet radio network which includes at least one base station and at least one terminal equipment and where several classes for the quality of service have been determined; determining at least one parameter representing the "overall service situation" of the packet radio network; and supplying the at least one parameter to the use of the terminal equipment, wherein the at least one parameter is determined relating to at least two base station systems and the at least one parameter is employed as a "crossover criterion." Thus, the combination of Chakraborty in view of Hyman does not render the claimed invention obvious for the reasons discussed above.

Claims 2-29 are pending. By this Amendment, Applicants have canceled claim 1, without prejudice. Applicants have also amended claims 2-19 to more particularly point out and distinctly claim the present invention. As discussed above, Applicants submit that certain clear and important distinctions exist between Chakraborty, the ATM Traffic Management Specification, Turina and Hyman and the claimed invention. Applicants submit that these distinctions are more than sufficient to render the claims of the invention unanticipated by and unobvious in view of the prior art. It is therefore requested that claims 2-19 be found allowable, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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